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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,822	02/25/2000	Kimio Tatsuno	NIT-185	6710

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EXAMINER

PATEL, GAUTAM

ART UNIT PAPER NUMBER

2655

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/512,822	<b>Applicant(s)</b> TATSUNO ET AL.	
	<b>Examiner</b> Gautam R. Patel	<b>Art Unit</b> 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7,8 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7,8,28 and 30 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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**Response to Amendment:**

1. This is in response to amendment filed on 6-30-04.
2. Claims 1, 3-5, 7-8 and 28-30 remain for examination. Claims 28-30 are newly presented for examination.

***Claim Rejections - 35 U.S.C. § 103***

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3-5, 7 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shih et al., US. patent 6,211,511 (hereafter Shih) in view of Kobayashi et al., US. patent 5,621,714 (hereafter Kobayashi); and Kume US. patent 5,727,111 (hereafter Kume).

As to claim 1, Shih discloses the invention as claimed [see Figs. 2-3], including an optical head, a first photodetector, a second photodetector and two light sources comprising;

A first laser light source [fig. 3A, unit 310a] having a first oscillation wavelength [650 nm] for reading or recording data from a recording medium [fig. 2, unit 260a & 260b] and a second laser light source [fig. 3A, unit 310b] having a second oscillation wavelength [780 nm] different from the first oscillation wavelength [col. 5, lines 26-47],

a first photodetector means [fig. 3, unit 310a] for obtaining out-of-focus detection signals based on the laser beams which have returned after being reflected by a surface of said recording medium, a second photodetector means [fig. 3, unit 310b] for obtaining a tracking error detection signal and an information reproduction signal [col. 5, line 23 to col. 6, line 13]; and

first photodetector means [fig. 3, unit 330a] for obtaining out-of-focus detection signals (FES) based on the laser beams which have returned after being reflected by a surface of said recording medium, second photodetector means [fig. 3, unit 330b] for obtaining a tracking error detection signal and an information reproduction signal [col. 6, lines 4-59];

in said first photodetector means, a first detecting means for detecting the out-of-focus detection signal [focus error signal FES] based on the laser beam from the first laser light source, and second detecting means for detecting the out-of-focus detection signal based on the laser beam from the second laser light source are spaced away from each other [col. 6, lines 21-26] from each [col. 6, lines 4-59];

Shih discloses all of the above elements, including dual power source of two wavelengths and dual photo-detectors one for focus control and another one for tracking control and a mirror that reflects light from these diodes. Shih does not specifically disclose that the first and second laser light sources being mounted to a recessed surface in a recess formed in a substrate and the substrate having been partial removed to form the recess, and a third photodetector for monitoring the quantity of light emitted from either laser diodes.

However, single substrate structure for multiple optical components has been known since 1970 [e.g., see Lehovec, US patent 3,668,404]. And it is well known in the art that by monitoring the light amount of the laser optical disc can be accurately controlled. Also, Kobayashi clearly discloses:

The laser light source being mounted to a recessed surface [fig. 31 and 32, recess 136] in a recess formed in a substrate [fig. 31 and 32, unit 135] and the substrate having been partial removed to form the recess surface [col. 22 lines 10-42];

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a mirror [fig. 31 and 32, unit 136a], constituting a part of said recess and arranged to reflect laser beams emitted from said first and second laser light sources to be outputted in a direction away from and normal to the substrate surface [col. 22 lines 10-42]; and

the mirror, the first, second and third photo-detectors are formed in the substrate monolithically [col. 22, lines 10-30], and wherein a thickness of the substrate in the recess is thinner than a region of the substrate that has not been partially removed to form the recess [see fig. 32 and col. 22 lines 10-42].

Both Shih and Kobayashi are interested in improving the quality of signals in an optical head and providing smooth read and write signals. Both are showing integrated structure of components and both shows multiple photo-detectors.

One of ordinary skill in the art at the time of invention would have realized that it would be advantageous to provide a compact design that can save money by integrating several parts in a single structure in an optical system.

Therefore, it would have been obvious to have used compact design of two lasers and a mirror in a single substrate and recessed substrate in the system of Shih as taught by Kobayashi because one would be motivated to provide a pickup which is composed of smaller number of elements and can be designed in an easy and accurate manner [col. 9, lines 40-43; Kobayashi].

The combination of Shih and Kobayashi discloses all of the above elements including third detector. However the combination does not disclose that the third monitor is for monitoring the quantity of light emitted from the first or the second laser light source.

However, it is well known in the art that by monitoring the light amount of the laser optical disc can be accurately controlled. Also, Kume clearly discloses:

a third photodetector [fig. 15, unit 53g] means for monitoring the quantity of light emitted from the first or the second laser light source, are provided [col. 14, lines 2-21].

Both Shih and Kume are interested in improving the quality of signals in an optical head and providing smooth read and write signals. Both are showing integrated structure of components.

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One of ordinary skill in the art at the time of invention would have realized that it would be advantageous to provide stable operation of the disc and also a stability of the playback operation in an optical system. Therefore, it would have been obvious to have used a third light detector for monitoring the quantity of light in the system of Shih & Kobayashi as taught by Kume because one would be motivated to provide accurate control of the disc and improve stability of the playback operation of the pickup [col. 14, lines 16-21; Kume].

5. As to claim 3, Shih discloses:

said recording medium is any one of an optical information recording and reproducing medium, an optical information reproducing medium, a magneto-optic information recording and reproducing medium, a magneto-optic information reproducing medium, an optical information recording and reproducing disc, an optical information reproducing disc, a magneto-optic information recording and reproducing disc, and a magneto-optic information reproducing disc [col. 1, lines 13-19].

6. As to claim 4, Shih discloses:

a laser light source having an oscillation wavelength of 650 nm is used in the case where the recording medium is a DVD medium, while a laser light source having an oscillation wavelength of 780 nm is used in the case where the recording medium is a CD medium [col. 2, lines 28-56].

NOTE: Shih does not exactly disclose that DVD wavelength is 660 nm. However one of ordinary skill in the art knows that wavelength for DVD has been in the range of 630 to 680 nm and depending upon application these wavelengths are routinely used. Older version use higher wavelengths and newer versions use lower wavelengths. So having exact 660 nm does not constitute a patentable differentiation as long as that wavelength is applicable to DVD.

7. As to claim 5, Shih discloses:

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Said first and second oscillation wavelengths are each determined in accordance with the type of said recording medium, and wherein said laser light sources are used selectively in accordance with the type of the recording medium and in conformity with a read wavelength [col. 5, lines 26-47].

8. As to claim 7, Shih discloses:

said first and second laser light sources are disposed adjacent each other so as to permit a single optical path to be used in the optical head [col. 5, lines 27-47 and fig. 3a].

9. As to claim 30, Kobayashi discloses:

The mirror composes a wall of said recess [col. 22, lines 10-42].

10. Claims 8 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shih and Kume as applied to claims 1, 3-5, 7 and 20 above and further in view of Kawachi et al., US. patent 4,750,799 (hereafter Kawachi).

As to claim 8, combination of Shih, Kobayashi and Kume discloses all of above described elements including, a first and second laser sources of different wavelength, first second and third photo-detectors, one for focus control and another one for tracking control and third for light amount monitoring, as disclosed above. Also Shih and Kobayashi clearly discloses that all the components are deposited on as single substrate and are enclosed in a closed unit. The above combination does not disclose well known details of layout of components when they are placed in single unit and/or a single substrate [hybrid design] and alignment marks associated with it. However one of ordinary skill in the art knows that when components are placed on a single substrate, alignment marks inherently necessary on the components and on substrate so as to distinguish where each component goes with respect to each other and with respect to surface of the substrate. In short these markings for alignment are inherently necessary for any kind of substrate related layout. Also Kawachi clearly discloses:

substrate and said first laser light source are optically aligned with each other on the basis of alignment marks affixed to the substrate and the first laser light source, respectively, and said substrate and laser light source are aligned with each other optically or by image processing on the basis of the alignment marks affixed to the substrate and the laser light source, respectively [col. 5, lines 19-42 and col. 14, line 19 to col. 7, line 5].

NOTE: Kawachi discloses only one light source [laser 3] and alignment of this source. Kawachi does not disclose second light source and its alignment. However one of ordinary skill in the art would have been able to incorporate second light source and many other necessary components in system of Kawachi from the teaching of Kawachi [col. 15, lines 1-5], because Kawachi teaches that his system can be adopted to incorporate many more lasers light detectors and wavelength filters.

All of the above combination of are interested in improving the quality of signals in an optical head and providing smooth read and write signals and providing best platform for implementing components on the same substrate.

One of ordinary skill in the art at the time of invention would have realized that it would be advantageous and necessary to provide a smooth and correct layout of multiple components on a single substrate. Therefore, it would have been obvious to have used alignments marks for various components and substrate itself in the system of Shih, Kobayashi and Kume as taught by Kawachi because it would have provided a practical vehicle for layout of the component on such a small scale layout of a single substrate and thus saving time and expense of layout of multiple components. Also, these provisions of alignment marks are well within the ability of one of ordinary skill in the art, these are well known tools and therefore they do constitute a patentable limitation as such.

11. As to claim 28, Kawachi discloses:

first and second laser light sources are soldered on said substrate [col. 5, lines 32-36].



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NOTE: Hybrid design as disclosed by Kawachi inherently has soldered components.

12. Applicant's arguments with respect to claims 1, 3-5, 7-8 and 28-30 have been considered but are moot in view of the new grounds of rejection.

### **Allowable Subject Matter**

13. Claim 29 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

NOTE: Claim 29 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose an apparatus which includes optical head which includes two light sources of different frequency which are placed in a recess which further satisfies "the spacing D between first and second light source which is a function of grating pitches of four regions". It is noted that the closest prior art, Shih shows a similar apparatus, which shows dual light sources. However Shih fails to disclose placement of the light sources as indicated.

14. Applicant's amendment necessitated the new grounds of rejection presented in this office action. Accordingly, THIS ACTION IS MADE FINAL. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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**Contact Information**

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.

Gautam R. Patel  
Primary Examiner  
Group Art Unit 2655

September 28, 2004

A handwritten signature in black ink, appearing to read 'Gautam R. Patel', with a long horizontal stroke extending to the right.

**GAUTAM R. PATEL  
PRIMARY EXAMINER**